

REMARKS

Summary of the Office Action

The application is subject to a Restriction Requirement between claims 1-14 and 20, drawn to a drill body, and claims 15-19, drawn to a method of manufacturing a drill body. Claims 15-19 are withdrawn from consideration.

Claims 1, 3, 8-14 and 20-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. However, the Examiner's indication that claims 3 and 10-13 contain allowable subject matter is greatly appreciated.

Claims 1, 8, 9, 14, 20, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,191,463 to Ladendorf in view of U.S. Patent No. 4,762,445 to Bunting et al. ("Bunting").

Claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ladendorf in view of Bunting, and further in view of U.S. Patent No. 5,486,072 to Green.

Summary of the Response to the Office Action

The election of claims 1-14 and 20, in response to the telephonic Restriction Requirement of 14 August 2006, is affirmed. Of course, Applicants reserve the right to file during the pendency of the present application a divisional application directed to the subject matter recited in non-elected claims 15-19.

Claims 2, 4-7 and 15-19 have been cancelled without prejudice or disclaimer.

Claims 3 and 10 have been rewritten in independent form in accordance with the Examiner's helpful indication of allowable subject matter.

Claims 1, 8, 13 and 20-23 remain as previously presented.

Claims 9, 11, 12 and 14 remain as originally filed.

Accordingly, claims 1, 3, 8-14 and 20-23 are pending for consideration.

All Claims Define Allowable Subject Matter

Claims 1, 3, 8-14 and 20-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. These rejections are respectfully traversed in view of the following comments.

Independent claim 1 recites a drill body including, *inter alia*, a “front head including a first material” and a “cutting edge including a second material integrally sintered with the first material of the front head.” Similarly, amended claim 20 recites a deep-hole drilling tool including, *inter alia*, a drill body that includes a “front head including a first material” and a “cutting edge including a second material integrally sintered with the first material of the front head.” Support for these combinations of features may be found in the specification as originally filed at, for example, paragraphs 0036 and 0037. In particular, either a single homogeneous compound is injected in the molding tool, or two or more material compounds having different properties may be used for making the drill body. *See* paragraph 0037, first two sentences.

However, the final Office Action asserts that, because first and second materials are recited, one skilled in the art would think that these two materials would be different. This assertion is respectfully traversed on at least three grounds.

First, contrary to the assertion in the final Office Action, it is respectfully submitted that “first” and “second” do not connote either similarity or dissimilarity. As an analogy, possessing first and second coins neither precludes nor requires that both coins be the same denomination, e.g., the first and second coins may both be quarters or the first coin maybe a quarter and the second coin may be a dime. Accordingly, it is respectfully submitted that reciting first and second materials neither precludes nor requires that the materials be the same.

Second, as stated in M.P.E.P. §2173.02, “definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; ... and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.” As noted above with reference to paragraph 0037, either a homogeneous material or different materials may be used. And claims 21 and 22 recite that the first and second materials are homogenous or that the first and second materials are different, respectively. Accordingly, based on an analysis in light of Applicants’ disclosure and/or claims, it is respectfully submitted that the first and second materials would not be interpreted as asserted in the final Office Action.

Third, as stated in M.P.E.P. §2173.01, Applicants are their own lexicographer, and can define in the claims what they regard as their invention essentially in whatever terms they choose. Moreover, as further stated in M.P.E.P. §2173.02, compliance with the requirements for definiteness is not a matter of whether more suitable language or modes of expression are

available. Accordingly, even if one skilled in the art would think that these two materials would be different, a proposition that Applicants do not accept, it is respectfully submitted that Applicants' recitation in independent claims 1 and 20 of first and second materials is sufficiently definite.

Thus, for at least any of the reasons stated above, it is respectfully submitted that independent claims 1 and 20 fully comply with the requirements of 35 U.S.C. § 112, and that the rejections thereunder should be withdrawn. Further, the rejections under 35 U.S.C. § 112 of claims 8, 14 and 21-23, merely because they depend from one of independent claims 1 and 20, are respectfully submitted to the in error and also should be withdrawn. Finally, claims 3 and 10-13 are respectfully submitted to be allowable in view of the Examiner's indication of allowable subject matter, and claims 3 and 10 having been rewritten in independent form.

Claims 1, 8, 9, 14, 20, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ladendorf in view of Bunting, and claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ladendorf in view of Bunting, and further in view of Green. These rejections are respectfully traversed in view of the following comments.

It is respectfully submitted that Ladendorf and Bunting cannot be combined as asserted in the final Office Action because Ladendorf and Bunting explicitly teach away from the combination. See M.P.E.P. § 2145(X)(D)(2). It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

Ladendorf shows a solid boring apparatus wherein a "boring head 20 comprises a one-piece body 30 which is made by investment casting in the final shape for receipt of a hardened cutter 31 and hardened bearing pads 32, 33 in cavities 32a, 33a" (column 2, lines 41-44). Moreover, a majority of Ladendorf (i.e., column 3, line 9, to column 5, line 34) is devoted to explaining the distinctions between investment casting the final shape and machining a boring head (i.e., shown in Ladendorf's Fig. 11). Accordingly, Ladendorf teaches a "cutting body 30 together with all the indentations, recesses and the like is formed by investment casting to the final shape" (column 3, lines 9-11), including an "axial chip opening 42 which communicates with a hollow axial opening 43 extending entirely through the boring head body 30" (column 2, lines 65-68).

In contrast, Bunting shows a composite sintered twist drill wherein a drill blank 21 is provided with slots 24, 25 into which a “well blended mixture of abrasive particles, such as diamond or cubic boron nitride, is then packed firmly” (column 3, lines 29-31; *see also* column 4, lines 21-27). After sintering, the “composite blank and the adjacent portion of the shaft are then helically fluted and finish-ground to form the body 28, Fig. 9, of the desired twist drill” (column 3, lines 51-54; *see also* column 4, lines 27-29). Accordingly, Bunting teaches that a partially formed blank, made of a material that is “selected with emphasis on such characteristics as transverse rupture strength, toughness, ease of brazing or welding and ease of grinding, rather than wear resistance” (column 3, lines 10-14), defines a cavity in which a mixture of abrasive particles is “packed firmly.” Then, after sintering in a high pressure and high temperature press (column 3, lines 35-39), “the abrasive mixture is well sintered with particle-to-particle bonding and is bonded directly to the cemented carbide” (column 3, lines 42-44), and then finally “helically fluted and finish formed” by a machining process.

Thus, it is respectfully submitted that Ladendorf extensively teaches against the final machining process of Bunting, and also that Bunting cannot be practiced according to Ladendorf. In the latter case, Ladendorf’s investment cast, final shaped boring head body 30, including chip opening 42 and axial opening 43, does not provide a cavity in which to firmly pack Bunting’s abrasive mixture for subsequent sintering. For at least any of the above reasons, it is also respectfully submitted that Ladendorf and Bunting cannot be combined as asserted in the final Office Action, that the rejections of claims 1, 8, 9, 14, 20 and 22-23 under 35 U.S.C. § 103(a) are improper, and that these claims are allowable.

The final Office Action relies on Green to allegedly suggest a single, homogenous material. However, Green shows “a core 2 of tungsten carbide material with helical blades 3 also of tungsten carbide material but with the core 2 being of softer grade material” (emphasis added; column 3, lines 25-27). Regardless of whether Green suggests a single, homogenous material, the alleged suggestion by Green that is relied upon in the final Office Action still fails to overcome the aforementioned inability to combine Ladendorf and Bunting. Therefore, it is also respectfully submitted that Ladendorf, Bunting and Green fail to teach or suggest the combination of features recited in claim 21, that the rejection thereof under 35 U.S.C. § 103(a) is improper, and that claim 21 is also allowable.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the pending claims are in condition for allowance, and respectfully request withdrawal of all outstanding rejections, and request the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the undersigned representative to expedite the prosecution.

Entry of this response is respectfully submitted to be proper insofar as it does not present any new claims, and places the application in condition for allowance, or least better form for appeal. Accordingly, entry of this of response is respectfully requested.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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